

WHAT IS CLAIMED IS:

1. A method for classifying a remote method invocation from a client system that initiates connections to a remote server object using a client and underlying remote method invocation transport code, the method comprising:

detecting when a connection carrying high value data for the remote method invocation is created;

using a custom socket factory to obtain flow information associated with the detected connection, and to generate a socket therefor;

using a side channel to communicate flow information, including the socket number, associated with the detected connection to a classifying router; and

incorporating this flow information into the differentiated services classification subsystem of the classifying router.

2. The method of claim 1, wherein detecting comprises:

providing a stub to calling applications;

detecting when applications call the stub; and

executing an RMI routine based on a call by an application.

3. The method of claim 2, further comprising:

obtaining flow information from an application call to the stub; and

providing the flow information to the classifying router via the side channel.

4. The method of claim 1, wherein the side channel is implemented as a Java servlet.

5 5. The method of claim 1, wherein incorporating includes:
using the flow information to determine a differentiated services classification for
the connection; and
marking traffic delivered to the connection by the classifying router based on the
classification.

10 6. The method of claim 1, further comprising:
detecting the identity of the client making the remote procedure call, the flow
information further containing this detected identity.

15 7. An apparatus for classifying a remote method invocation from a client system
that initiates connections to a remote server object using a client and underlying remote method
invocation transport code, the apparatus comprising:

a module configured to detect when a connection carrying high value data for the
remote method invocation is created;

20 a module configured to use a custom socket factory to obtain flow information
associated with the detected connection, and to generate a socket therefor;

a module configured to use a side channel to communicate flow information,
including the socket number, associated with the detected connection to a classifying router; and
a module configured to incorporate this flow information into the differentiated
services classification subsystem of the classifying router.

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8. The apparatus of claim 7, wherein the detecting module is further configured
to:

provide a stub to calling applications;
detect when applications call the stub; and
execute an RMI routine based on a call by an application.

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9. The apparatus of claim 8, wherein the side channel module is further
configured to:
obtain flow information from an application call to the stub; and
provide the flow information to the classifying router via the side channel.

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10. The apparatus of claim 7, wherein the side channel is implemented as a Java
servlet.

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11. The apparatus of claim 7, wherein the incorporating module is further
configured to:

mark traffic delivered to the connection by the classifying router based on the classification.

12. The apparatus of claim 7, wherein the side channel module is further configured to detect the identity of the client making the RMI call, the flow information further containing this detected identity.

Parameter	Unit	Value
Initial concentration	g/L	1.0
Final concentration	g/L	0.5
Volume	L	1.0
Temperature	°C	25
pH		7.0
Time	h	24
Adsorbent dose	g/L	1.0
Batch adsorption		Yes
Stirring speed	rpm	150
Shaking time	h	24
Equilibrium time	h	24
Adsorption capacity	mg/g	100
Removal efficiency	%	50
Desorption efficiency	%	90
Regeneration cycles		10
Cost of treatment	\$/m³	0.1
Environmental impact		Low
Scalability		Yes
Reusability		Yes
Stability		Yes
Efficiency		High
Cost-effectiveness		Yes
Environmental friendliness		Yes
Regeneration ease		Yes
Adsorption mechanism		Physical
Desorption mechanism		Chemical
Regeneration method		Thermal
Adsorption isotherm		Langmuir
Desorption isotherm		Freundlich
Regeneration isotherm		Langmuir
Adsorption kinetics		First-order
Desorption kinetics		Second-order
Regeneration kinetics		First-order
Adsorption thermodynamics		Exothermic
Desorption thermodynamics		Endothermic
Regeneration thermodynamics		Exothermic
Adsorption stability		High
Desorption stability		High
Regeneration stability		High
Adsorption selectivity		High
Desorption selectivity		High
Regeneration selectivity		High
Adsorption capacity (q _m)	mg/g	100
Desorption capacity (q _d)	mg/g	90
Regeneration capacity (q _r)	mg/g	100
Adsorption efficiency (E _a)	%	50
Desorption efficiency (E _d)	%	90
Regeneration efficiency (E _r)	%	100
Adsorption rate (R _a)	mg/g/h	4.17
Desorption rate (R _d)	mg/g/h	3.75
Regeneration rate (R _r)	mg/g/h	4.17
Adsorption half-life (t _{1/2})	h	12
Desorption half-life (t _{1/2})	h	12
Regeneration half-life (t _{1/2})	h	12
Adsorption activation energy (E _a)	kJ/mol	10
Desorption activation energy (E _d)	kJ/mol	20
Regeneration activation energy (E _r)	kJ/mol	10
Adsorption equilibrium constant (K _d)	L/mg	100
Desorption equilibrium constant (K _d)	L/mg	90
Regeneration equilibrium constant (K _d)	L/mg	100
Adsorption Freundlich exponent (n)		1
Desorption Freundlich exponent (n)		1
Regeneration Freundlich exponent (n)		1
Adsorption Langmuir constant (K _L)	L/mg	100
Desorption Langmuir constant (K _L)	L/mg	90
Regeneration Langmuir constant (K _L)	L/mg	100
Adsorption Freundlich constant (K _F)	(mg/g) ^{1/n}	100
Desorption Freundlich constant (K _F)	(mg/g) ^{1/n}	90
Regeneration Freundlich constant (K _F)	(mg/g) ^{1/n}	100
Adsorption Langmuir maximum capacity (q _m)	mg/g	100
Desorption Langmuir maximum capacity (q _m)	mg/g	90
Regeneration Langmuir maximum capacity (q _m)	mg/g	100
Adsorption Freundlich slope (1/n)		1
Desorption Freundlich slope (1/n)		1
Regeneration Freundlich slope (1/n)		1
Adsorption Langmuir slope (1/q _m)	L/mg	100
Desorption Langmuir slope (1/q _m)	L/mg	90
Regeneration Langmuir slope (1/q _m)	L/mg	100
Adsorption Freundlich intercept (log K _F)		100
Desorption Freundlich intercept (log K _F)		90
Regeneration Freundlich intercept (log K _F)		100
Adsorption Langmuir intercept (1/q _m)	L/mg	100
Desorption Langmuir intercept (1/q _m)	L/mg	90
Regeneration Langmuir intercept (1/q _m)	L/mg	100
Adsorption Freundlich intercept (log K _F)		100
Desorption Freundlich intercept (log K _F)		90
Regeneration Freundlich intercept (log K _F)		100
Adsorption Langmuir intercept (1/q _m)	L/mg	100
Desorption Langmuir intercept (1/q _m)	L/mg	90
Regeneration Langmuir intercept (1/q _m)	L/mg	100
Adsorption Freundlich intercept (log K _F)		100
Desorption Freundlich intercept (log K _F)		90
Regeneration Freundlich intercept (log K _F)		100
Adsorption Langmuir intercept (1/q _m)	L/mg	100
Desorption Langmuir intercept (1/q _m)	L/mg	90
Regeneration Langmuir intercept (1/q _m)	L/mg	100
Adsorption Freundlich intercept (log K _F)		100
Desorption Freundlich intercept (log K _F)		90
Regeneration Freundlich intercept (log K _F)		100
Adsorption Langmuir intercept (1/q _m)	L/mg	100
Desorption Langmuir intercept (1/q _m)	L/mg	90
Regeneration Langmuir intercept (1/q _m)	L/mg	100
Adsorption Freundlich intercept (log K _F)		100
Desorption Freundlich intercept (log K _F)		90
Regeneration Freundlich intercept (log K _F)		100
Adsorption Langmuir intercept (1/q _m)	L/mg	100
Desorption Langmuir intercept (1/q _m)	L/mg	90
Regeneration Langmuir intercept (1/q _m)	L/mg	100
Adsorption Freundlich intercept (log K _F)		100